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ABSTRACT

This paper reviews major theories related to the role of education in economic development and presents results of several empirical cross-national studies that have analyzed this relationship. Most research on the role of education in developing nations has concluded that modernization of national educational systems will facilitate national economic growth, although recommendations diverge concerning whether the modernization should be based on a western model or a nationalistic model. As an alternative to these schools of thought, this research offers an interpretation of the role of education and development based on dependency theory. Dependency theory maintains that because all aspects of society in developing nations are influenced by economic dependence on industrialized nations, modernization in one sector such as education will not necessarily facilitate national economic growth. Dependency theorists argue that the failure of developing nations to modernize is due to dependency ties to developed nations and to an economic base that is insufficient to support the modernization which has been grafted onto it. A series of empirical cross-national longitudinal analyses of the relationship between educational and economic expansion was performed to test this dependency theory interpretation. The specific focus of the studies was the impact of educational enrollment levels at primary and secondary school levels in 1955 and economic development for 1955 to 1970. Findings indicated that educational expansion did not seem to facilitate national economic growth during this time period. The conclusion is that the dependency theory interpretation comes closer to explaining the relationship between education and economic development than either a western or a nationalistic development perspective. (DB)

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Education and Development:

Towards a Dependency Interpretation

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Most discussion of the role of education in "developing" countries suggests that modernization of national educational systems will facilitate national economic growth, although views diverge concerning whether the modernization should be based on a Western model or a nationalistic model. This paper reviews these two schools of thought, and offers an alternative interpretation of the role of education and development, based on dependency theory. It is suggested that educational systems in underdeveloped nations reflect an unequal international division of labor and are influenced by economic dependence on industrialized nations. Educational reform, in and of itself, is not viewed as an effective strategy for promoting economic growth. A series of cross-national panel analyses provide partial support for this suggested interpretation: expansion of neither primary nor secondary schooling between 1950 and 1960 had a significant effect on national economic growth between 1960 and 1970. While educational expansion, per se, did not seem to facilitate national economic growth during this time period, it is possible that educational expansion may have a positive effect on other aspects of national development.

In most discussions of the role of education in "developing" countries, it is assumed that a modernization or transformation of educational systems will facilitate national economic growth. I am interested in systematically exploring the relationship between change in educational systems and economic development at the level of the nation-state for countries that are considered to be currently underdeveloped or undeveloped -- the areas that are usually referred to as the "Third World." In political ideology and academic analyses alike, many of the hopes for development in the underdeveloped world have been pinned on education -- specifically, the expansion of a modern system of education that will prepare a formerly traditional people for modernity and that will lay a solid foundation for national economic growth. This viewpoint implies that a reconstruction of Third World educational systems is a functional requisite for economic growth, although views diverge concerning the appropriate model for such a transformation. Some advocate the use of a Western model while others argue that only a nationalistic model will provide the needed basis for economic growth.

The dominance of this perspective can be illustrated by the emphasis placed on educational transformation and expansion in post-independence Africa. Since the end of formal colonial rule, much of each independent nation's scarce resources has been devoted to an expansion and improvement of educational systems for the African population. Many African leaders have emphasized the central importance of educational change, although they have

differed in the extent to which they relied on the Western example. In part, the leaders have responded to an overwhelming public demand for increased access to public education, particularly at the primary level. The perception of education as a key modernizing influence is shared by international assistance agencies as well, who have placed a strong emphasis on educational expansion as a driving force behind economic and political advancement through industrial, commercial and agricultural modernization.

This paper will attempt to demonstrate that such a modernization perspective does not provide an adequate framework for understanding the empirical relationship between educational change and economic advancement. I am interested in formulating an interpretation of the role of education in economic development that is based on dependency theory, a perspective which has recently received widespread attention in the sociological literature on underdeveloped national economies. The basic argument is that educational systems in underdeveloped nations reflect an unequal international division of labor and are strongly influenced by economic dependence on industrialized nations. Since the economic status of Third World countries is thought to be heavily conditioned by their dependent position in the world-economy, educational reform will not be able to further national development in the absence of changes in other structural dependent ties that link them to the larger world-economy.

My purposes in this paper are two-fold: to describe what I see as the three major perspectives that have been advanced concerning the role of education in economic development, and to briefly present the results of a few empirical cross-national studies that have analyzed this relationship. To accomplish this,

I will first briefly describe the competing sociological theories of development that, explicitly or implicitly, underlie the work in this area. My primary emphasis in this paper is on the theoretical formulations, and as such I will not describe the empirical analyses in great detail.

Work in the area of development can generally be subsumed under the categories of either modernization or dependency theory.[1] Modernization theory suggests that development in the Third World will proceed as modern values, skills, and institutions spread (diffuse) from the "modern" sectors to the "traditional" sectors. This involves diffusion from the advanced nations to cities in the more backwards (underdeveloped) nations, and them from those cities to their hinterland. Development is seen as a unilinear and implicitly limitless process, usually modeled on prior Western experience. Dependency theorists, on the other hand, view the Third World (in their terminology, peripheral) countries as an integral part of an international economic structure (the world-economy), in which different areas play different social and economic roles. The hierarchy and inequality of the system are viewed as functional requisites for the maintenance of the system as we know it, therefore not every nation can "develop." This limitation does not, however, preclude the upward or downward

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[1]This review is oversimplified. Interested readers can find far more complete explications of modernization theory in, for example, the work of Rostow (1960), Inkeles and Smith (1974), Harbison and Myers (1964), and others referenced in the subsequent discussion of education and modernization. Dependency theory was originally formulated by, among others, Samir Amin (1977), Andre Gunder Frank (1966), and Fernando Henrique Cardoso (1979). An informative contrast of the two competing theories, albeit from a dependency perspective, is provided by Chilcote (1977).

mobility of individual nations or areas within the world structure. Consequently, the peripheral countries are not thought to be less modern than the core, industrial areas -- they are rather incorporated into the modern world-economy on different terms from the core.

The critical differences between the two theories for purposes of this analysis are as follows. Modernization theorists generally regard the nation-state as an isolated entity, while dependency theorists typically analyze national-level processes in the context of the nation's structural position in the world-economy. Secondly, modernization theorists analyze education in terms of its consequences for individuals' skill acquisition and socialization, and tend to regard education as a requisite for development. Dependency theorists would analyze the linkages between the social and economic structures and educational systems.

The categorization that I will present suggests that the dominant approaches to education and development, while seemingly different, are both based on modernization theory. What I call the "developmentalist" perspective is based upon the notion that education can play a primary role in the movement of underdeveloped countries from a "traditional" to a "modern" economic, social, and political condition. What I call the "nationalist" perspective argues that, while education based on Western or neo-colonial models has served foreign interests to the detriment of national development, a "nationalized" system of education can contribute to the process of autonomous national development. Randall Collins' (1971) distinction between technical-functional and status-conflict theories of educational stratification, while not formulated at an international level, can nevertheless be used to

distinguish between the developmentalist and nationalist perspectives. Consist with a technical-functional argument, the developmentalist perspective views education as providing needed skills for an industrialized society, and therefore an investment in national education will yield a substantial return in increased national prosperity.[1] In a status-conflict vein, however, the more radical nationalist perspective argues that neocolonial education primarily serves a channelling function. "Educational requirements for employment, rather than flowing from functional economic demands, enable the particular status group controlling school to control the work place as well" (LaBelle and Verhine, 1975, p. 174). The final suggested viewpoint, which I call the dependency perspective, argues that peripheral nations' failure to develop is neither due to a failure to modernize their educational systems nor a failure to develop nationalistic educational systems, but is explained by the specific role they play in the world-wide division of labor (see, e.g., Wallerstein, 1976). Existing educational systems are viewed as a consequence and, at the same time, means of reinforcement of this dependent position.

The Developmentalist Perspective

According to the developmentalists, education plays a key role in the process of development in the underdeveloped world. The most important feature of the perspective is that education is thought to bear a primary responsibility for the movement of Third World nations from a traditional to a modern economic, political, and social condition. Education has two key functions

[1]For example, McClelland (1966) estimated that the return on educational investment to national growth is approximately twelve percent per annum.

which further the modernization process: it responds to national needs for trained manpower, and for the socialization of a nation's population into modern value orientations, attitudes, and personalities (Inkeles and Holsinger, 1974; Anderson, 1968; Sack, 1974; and Klineberg, 1974). Implicitly, the developmentalist perspective assumes that the major reason why the Third World has failed to develop is that individuals within the countries do not have sufficient education to support a modern occupational structure and they are too traditional in their outlook to participate in a modern world. It is important to note that the problem is defined as one pertaining to the characteristics of individuals, or perhaps the aggregate of individuals at the national level. The problem does not pertain to the social structure at the national or international level.

The developmentalists look to modern schooling as the means for promoting individual modernity. "...One of the routes to a modern society lies in the acquisition of trained manpower, or the recruitment or development of modern individuals to be members of that society. Perhaps one of the most important interventions of public policy on the individual lies with the educational system" (Cunningham, 1974, p. 48). Implicitly, a modern (developed) society will evolve when the individuals within the society become modern. The developmentalists, however, do not address the issue of why a high level of individual modernity is thought to cause national development nor are any data cited to justify this assumed linkage. The developmentalists' basic model can be illustrated as follows:

	leads to		leads to	
modern schooling	⟶ (explicit)	individual modernity	⟶ (implicit)	national development (modernization)

Research efforts within the developmentalist perspective investigate the connection between modern schooling and individual modernity, primarily, and the benefits of a high proportion of modern individuals within the society are expected to lead to national modernization (see, e.g., Inkeles, 1974). The developmentalists think that promoting "individual modernity" will increase the modernity and therefore the development of the nation. Their advice to national leaders is that they could "...look to the educational system as a source for modernization, and to educational policy as a tool for expediting it" (Cunningham, 1974, p. 48).

The developmentalists cite consistent findings of strong relationships between education and occupational positions, such that high levels of education are associated with high-status, high-paying jobs, as evidence that a higher level of education within a society will lead to the formation of a higher-level (more modern) occupational structure within the society. Furthermore, they state that in the now-developed countries educational expansion furthered the course of industrialization and development, so they also expect that educational expansion will promote development in the Third World. Both arguments are seriously flawed. It is quite a different matter to demonstrate the relationship between an individual's education and the particular slot in a fairly stable occupational structure that he/she fills as compared to demonstrating that raising the

aggregate education level of individuals within a nation will transform the overall occupational structure. That is, the developmentalists generalize the benefits that accrue to individuals via education to national economic growth and improvement via educational expansion (Carnoy, 1974). Evidence from Africa suggests that educational expansion serves to raise the credentials required for a particular job, and that it has little effect on the occupational structure in the absence of other changes in the economy. The second argument is misleading on two accounts. First, in most now industrialized countries, industrialization preceded dramatic expansion of schooling for the masses (Kanf, et al, 1975) and was based on a largely illiterate labor force (e.g., the Industrial Revolution in England), therefore education should not be viewed as a prerequisite for industrialization. Secondly, in those cases in which rapid expansion of mass education accompanied the period of most rapid economic development (e.g., the U.S. in the late nineteenth century), it is impossible to isolate education as a causal factor in the development process since many social and economic changes occurred concurrently; thus, it is illegitimate to suggest that, in isolation from other social and economic changes, educational expansion alone can be a significant factor in national economic development. This is not to argue that a certain level of skill is not required on which to base a "modern" economy (i.e., that education may be a necessary condition for development in our contemporary, technological context), but rather that modern, extensive education cannot be seen as a sufficient condition for development.

Some of the developmentalist studies have used the appropriate unit of analysis (i.e., the nation) to permit valid generalizations concerning the process of national educational change and national development. However, most of these studies have been cross-sectional in nature. Findings of significantly positive correlations between national development and education levels have been used to argue that more schooling furthers the development process (e.g., Harbison and Myers, 1964). However, it is impossible to disentangle cause and effect from a static relationship, as Paci's (1977, p. 341) critique of the "human capital" school points out:

> The connection that has been observed between education and economic development, however, does not necessarily mean that the raising of the standard of education for the labor force is a requisite of economic development. It could also mean that, following an increase in income, the inclination on the part of the population to receive a secondary and higher education, and the objective possibility of their attaining it, also increase.

The evidence cited in support of education's influence on development could just as easily be used to argue that increased mass consumption of education is a consequence of national economic growth; it may be a luxury that more developed countries can afford, but which is basically unrelated to the process of economic development.

The major paradox of modernization theory's perspective on education and development is that, in Africa as in other peripheral areas, massive educational expansion has occurred without producing a widespread change in the occupational structure or facilitating national development. Indeed, between 1950 and 1970, educational systems expanded very rapidly throughout the world, and the expansions seemed to be unrelated to differences in national economic, political and social development (Meyer,

Rubinson, Ramirez, and Boli-Bennett, 1979). Implicitly, modernization theory suggests that development cannot proceed due to a lack of educated personnel to expand the modern sector; but the African experience shows that there can be a high level of unemployment and underemployment among educated people (Brownstein, 1972; Heyneman, 1971). "Overeducation" may be associated with the phenomenon of "overurbanization" in the periphery, in that educated people migrate to the cities in search of the type of employment they have come to expect, but find that the modern sector cannot expand to absorb them. As Foster (1972, p. viii) stated:

> A few years ago it was fashionable to speak of Africa's inexhaustible need for "educated manpower." We are now confronted by the apparent paradox that the subcontinent seems unable to utilize effectively the manpower resources that it has already generated.

The Nationalist Perspective

What I have called the nationalist perspective on education and development differs from the developmentalist perspective in that it realizes that current strategies for development, including educational expansion and improvement, have been far more oriented to foreign than national interests. The problem of development is treated as the failure of underdeveloped nations to break dependent ties with former colonial or imperialist powers, including the ties embodied in the national educational system. Given the fact that the educational institutions inherited from the colonial era have not been thoroughly restructured to meet national needs, education works to hinder rather than to further development (Court and Ghai, 1974). This viewpoint critiques the developmentalists for their failure to recognize

the self-serving consequences of colonial educational forms and the legacy of colonialism in the continued benefits of education to foreign rather than national interests.

The obstacles to development are perceived to primarily consist of dependence in academic, cultural and economic affairs on international tastes and priorities that are not necessarily applicable to the peripheral environment (rather than the structural ties of dependence inherent in the nation's position as a peripheral producer in the world division of labor, as proposed by dependency theory). However, this view is optimistic concerning the potential for a transformed system of national education to further the course of economic and political development. As such, it shares the developmentalists' position that education can be an effective force for modernization and development (albeit on the nation's own terms, not on foreign terms), and it looks to the individual nation as the unit of analysis; therefore, it shares a common basis in modernization theory with the developmentalist perspective. The perspective attributes the power to further the course of development to national hands, and it includes education as an institution that, under national control and designed for national purposes, could play a decisive role in development. A political strategy consistent with the nationalist perspective has, in recent years, been implemented in some countries when nationalist regimes have come into power, in the form of committment to education for the populace.[1]

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[1]For example, Tanzanian leader Nyerere expressed the importance of educational expansion to the realization of nationalist political goals when he stated that: "If I leave to others the building ofour elementary school system, they (the people) will abandon me as their responsible national leader" (quoted in Meyer, Ramirez, Rubinson, and Boli-Bennett, 1979).

One version of the nationalist perspective, which has drawn from the radical critique of the inequalities of the U.S. schooling system, has sharply criticized most extant systems of education in developing countries for serving to reproduce an unequal national division of labor imposed on the nation by foreign interests. According to this perspective, education in the periphery has functioned to "...prepare elites for high status and leadership positions and to incorporate non-elites into the lower strata of the social system" (LaBelle and Verhine, 1975, p. 175). To maintain their control over the system via the seemingly meritocratic mechanism of educational criteria for high status jobs, the upper levels of the education system are reserved for the highest social groups. A school system not transformed by a national revolution, then, reproduces the class structure of the economy and the society from one generation to the next (Bowles, 1971). Part of the mechanism of this reproduction is the "hidden curriculum" of the schools, through which students are socialized into the attitudes, beliefs, and personality characteristics that correspond to their expected position in the (national) division of labor. Bowles (1971, p. 479) explicitly links domination of a nation's economy by foreign interests with the structure of the school system, particularly the upper levels: "Where the imperialist division of labor results in a class structure dominated at the top by foreign management and technical personnel, we may expect to find a corresponding underdevelopment of the nation's advanced educational institutions." Educational systems in the underdeveloped countries, then, share the characteristic of education in the core in that they function to reproduce a national division of labor; but the national economy is oriented to foreign

interests so national education serves foreign rather than local interests. A crippled system of national education is viewed as both a cause and consequence of domination of the national economy by international capitalist interests (imperialism).

The dependence of peripheral educational systems on Western models has been well-documented by two recent analyses of ways in which African education has been structured to meet the needs of core capitalism. Mazrui (1975) likens the African university to a multinational corporation, in that it was started as an extension of European institutions, and decisions about educational priorities were not made by Africans. For example, even in the post-independence era, the structure and curriculum of East African universities were determined in England. Mazrui suggests that the universities have consolidated economic dependence, in part, because the African graduates often adopted the world view of the core capitalist powers and lent credibility to foreign penetration. Berman's (1979) analysis of the impact of U.S. foundation activity on African education in the post-World War II period is an example of a similar viewpoint. Berman charged that, under the guise of "value-free social science," the foundations attempted to shape African education to fit the needs of core capitalism. They supported "educational projects and developmental models which would bind foreign nationals and their institutions to the dominant values of the American corporate state" (p. 155). An important aspect of this process was the education of indigenous elites (at times even the creation of a sympathetic elite) whose outlook and values would support U.S. interests.

Bowles (1971) cites the Cuban experience in educational reform as a model for developing countries to follow. He states that a revolutionized Cuban system of education has eliminated Cuba's dependence on the core (mainly the U.S.) in scientific and cultural spheres through a major expansion and freeing of access to education to everyone. "There is every indication that the allocation of a sizeable fraction of the nation's resources to education has made a major contribution to the forces of production" (p. 491). Bowles, then, exemplifies the nationalist perspective in that he argues that a (drastic) reorientation of the national educational system to national needs can be a major force in economic growth and escaping the hegemony of the core in economic, political, and cultural matters. Bowles' error is in his suggestion that educational reform, in the absence of the other massive transformations that took place in Cuban society following the revolution, can be a significant factor in economic development. Aside from the real internal transformations accomplished by the Cuban revolution, one can question whether Cuba succeeded in accomplishing autonomous national development or substituted dependence on the U.S. for dependence on the Soviet Union, leaving its functional role in the world-economy unaltered (that of primary producer of sugar for the world market, only now primarily to Soviet markets).

Dependency theorists would agree with the nationalists' analysis of the problems with peripheral education in colonial and post-independence periods -- that it does not diffuse "modernism" or promote national growth and expansion, but serves to deepen dependent relations with the core since education is oriented to the interests of core capitalism and is irrelevant to

local production conditions. However, the two perspectives differ drastically in terms of the possibilities for national development by means of a reformed educational system in the periphery. Nationalists suggest that a reorientation of the educational system to local cultural and economic needs can serve to "decolonize modernization," to use Mazrui's term, and lead to autonomous development. Mazrui suggests that the universities can promote a cultural import-substitution; Bowles advocates development through educational expansion; Court and Ghai encourage a reorientation of education toward the practical, particularly the agricultural; and a consistent theme in the literature on education in Africa is that it should concern itself with African culture, language, and production conditions. Speaking of Kenya, Ghai asserts that the failure of the colonial model to meet local conditions is responsible for Kenya's educational problems, but restructured schooling can "respond to developmental needs and chart the course towards a truly national system of education" (1974, p. 25).

Nationalists assume that the needed changes in the periphery's dependent relationship with the core can come from within and that part of the fault for continued dependence lies with the periphery's failure to wrest control of its educational institutions from neocolonial interests. The success of some countries in achieving a measure of upward mobility in the world-system is attributed, in part, to nationalized education (e.g., Mexico, China, Brazil, India). While they temper their optimism concerning the development potential of "modern" education with caution about the need for education to be explicitly oriented to national

development, both developmentalists and nationalists perceive education as the "key to modernization" (Abernethy, 1969).

The Dependency Perspective

Much of the content of the dependency perspective was previously described in terms of its deviations from the developmentalist and nationalist perspectives. In essence, dependency theorists argue that the periphery's failure to modernize and develop is due to the limits of its dependent ties with the core. Modern education, as well as other institutional forms of development such as concentrated urban areas, technology, and Western tastes, have merely been grafted onto an economic base that is insufficient to support development; these institutions give the appearance of modernism without the substance of economic growth and diversification. Furthermore, peripheral education serves to reproduce an international division of labor in which the periphery plays the role of producer of low-wage goods. The extant systems of education in the periphery are viewed as a consequence of dependency and, in the absence of concurrent structural changes in the economy and in the ties to the core powers (i.e., a significant transformation in the world division of labor), educational reform will not be able to further national development, even if it is restructured to correspond to national needs and priorities.

An application of dependency theory to education would not take issue with the developmentalists' assertion that education promotes individual modernity, but refute the notion that a high aggregate level of individual modernity will promote national development. Educational modernization may promote a deepening

of dependent ties as modernism is defined on the core's terms. The dependency perspective also does not argue with the nationalists' critiques of neocolonial educational systems for their reproduction of an unequal national division of labor or irrelevance to the African context, but argues that these are not the central reasons why contemporary education consolidates dependency. If education serves the interests of the current national elites, it will still consolidate dependency and limit national growth because the peripheral elites' interests are allied with the core. Dependency theory implicitly does not expect that reformed national education systems can be a sufficient or even relatively important basis for national development given the structure of the capitalist world-economy. Perhaps this is why education has received so little attention in the recent literature on dependency and underdevelopment. Education may well serve to consolidate dependency, but it cannot be a force for breaking out of dependency.

One interpretation of the link between education and economic productivity is that education is basically irrelevant to the requirements of most jobs. In an analysis of American education, for example, Randall Collins (1979) argues that schools are highly inefficient means for providing work skills, most occupational skills are learned on-the-job, and that historical increases in levels of schooling required for jobs stem more from an inflationary credentials market than from increases in skill levels of occupations. An extension of this argument to a world-system level would suggest a need to look to social and political explanations of the rise in educational levels which generally accompanies economic development, rather than to look for skill and

training demands within an expanding occupational structure that require more educated employees. Collins suggests that, beyond the provision of mass literacy, there is no clear evidence that increased educational levels contribute to national economic productivity. The contemporary phenomenon of "overeducation" in the periphery supports the suggestion that economic development does not depend on skills provided to the populace by a modernized educational system: "The overproduction of educational personnel in countries whose level of economic development cannot absorb them suggests that the demand for education need not come directly from the economy and may run counter to economic needs" (Collins, 1979, p. 15).

Two recent analyses have provided a partial application of dependency theory to the problem of education and development: Martin Carnoy's Education as Cultural Imperialism and Philip Altbach and Gail Kelly's Education and Colonialism. Both recognize that the peripheral nations are still dependent on the core and that modern education has furthered this economic tie due to its dependence on the Western model (neocolonial education). Both refer to the periphery's role in a world division of labor and recognize economic ties and production consequences of the role of peripheral producer. As such, neither attributes a power of educational reform and subsequent breaking of dependent ties to the peripheral nation-state, and both see limited possibilities for the indigenous post-independence bourgeoisie to champion autonomous national development or reorient education to this purpose, because the extant systems of education serve to meet the needs of the peripheral elites (because their positions and

financial benefits are contingent on following a path of limited national dependent development). The contradictions of schooling in the periphery when viewed by the developmentalist or nationalist perspectives can be understood when educational forms are viewed as a consequence of a dependent economic position, and when the assumed direct benefits of educational attainment for economic productivity are questioned.

Education in the periphery is oriented towards the periphery's role as a primary producer and underclass in the world division of labor. In that role, the peripheral class structure differs from that of the core -- the peripheral nations have a large underclass since much of their production needs can be met with unskilled or perhaps semiskilled labor. The middle class is much smaller in the periphery than in the core, as the economy is not oriented towards their professional, managerial, and technical functions; in the periphery, the government employs much of the nations' middle class in civil service positions because there are limited possibilities for white-collar employment in the private sector. But there are limits on the number of middle-class positions that the government can provide. To reproduce the national division of labor (which varies according to a nation's position in the world-economy and is limited in its potential for change due to that position), education systems differ dramatically between the core and periphery <u>not</u> because of a failure to meet local needs in the periphery but <u>because</u> they respond to local conditions and labor needs (which are dictated by the core's dominance). In a similar vein, as the economies in African nations are indirectly controlled by core producers and respond to core needs, education in Africa is planned and

largely controlled by foreigners, even in the post-independence era. Again, this penetration of African education by core interests parallels the penetration of the economy. This perspective views the proliferation of American and European educational assistance programs to underdeveloped nations as a source of dependency consolidation, however benign the intent of the planners. Education in Africa fits the definition of a dependent education system: It is "...controlled from without for the aims and profit of a foreigner rather than for the nation" (Altbach and Kelly, 1978).

The nationalist and dependency perspectives differ completely in their faith in the ability of the national population, or more specifically the national bourgeoisie, to initiate development through education. The nationalists suggest that education could be a force for national development <u>if only</u> the national elites could take firm control of the education system and restructure it to meet national development goals. Dependency theory, however, holds no hope for the national bourgeoisie's potential for challenging dependence, even in the national educational institutions. The foreign dominance is not challenged by the peripheral elites, and may even be furthered by them, because the ruling groups are closely linked with the economy and culture of the core, so it is not in their interest to recognize a need for change in the status quo. Along the same lines, the peripheral elites have a vested interest in maintaining a Western model of education (i.e., they are not just indifferent to change) because it helps them to maintain their monopoly control over credentials and therefore prestige positions. Most of the African leaders in the immediate

post-independence period and beyond were products of elite schools controlled by Europeans; this colonial or neocolonial education system (the two are practically indistinguishable) worked to socialize the elites into their expected role as intermediaries between the core and the dependent periphery. One of the reasons, then, why neocolonial education promotes dependence is that it "...entails the assimilation of an elite of the colonized into the nation of the colonizer" (Altbach and Kelly, 1978, p. 43). Schools can accomplish this consolidation because education is an institution for colonization, social control, and hierarchical skill production (Carnoy, 1974).

Rising education levels in the periphery do not necessarily promote development but only serve to up the ante for educational credentials required to secure the limited number of white-collar positions in the economy and do not serve to create more positions. One of the functions of modern education in the periphery is to placate the populace by offering them one of the forms of modernism -- although this is not to suggest that it is not intrinsically beneficial to peasant producers to be able to read and write. Undoubtedly many benefits accrue to individuals by contact with educational institutions, but this is not schooling's primary purpose in the periphery. Its primary purpose is to transmit ties of dependence and to encourage acceptance of the peripheral role in the world-economy. As summarized by Carnoy (1974, p. 43), peripheral schooling works "...to incorporate people outside the advanced countries into the sphere of influence and control of these countries and their monopolies. Going one step further, the role of schooling as introduced by the advanced countries is

to bring people into a social and economic structure in which they can be more effectively exploited by the advanced-country monopolies." One does not have to suggest a world-wide conspiracy theory for peripheral education to function to consolidate dependence and make it pallitable to the peripheral peoples; it will work this way if power groups, including elites in the core and periphery, follow courses to maximize their own self interests.

The fact that European-styled education in Africa produced the indigenous elites who promoted national autonomy and brought about the demise of (formal) colonial rule does not negate education's role in dependency consolidation. The production of an activist national elite may have been an unintended outcome of colonial education, but, for the most part, these new African elites have not challenged their nations' positions of dependency and have filled the roles as intermediaries between core and periphery (i.e., they became the dependent bourgeoisie) vacated by Europeans. The role that educated individuals do sometimes play in promoting instability in the system is one of the contradictions of peripheral education, but, at least to date, the threats have been contained.

Dependency theory, then, predicts a failure of modern and expanded education to promote national development in peripheral nation-states. The obstacles that colonial education posed to autonomous national development have been well-documented. What remains to be examined is the extent to which post-colonial education reform has successfully promoted national economic development. While it is debatable whether education in many peripheral areas is oriented to national needs, education in the periphery has been (at least nominally) under national control for some

time -- approximately twenty years for African and Asian former colonies that gained formal independence in the 1950's and early 1960's, and much longer for most other peripheral nations. To date, the development gains have been unimpressive, in spite of dramatic extension of national educational systems. African nations, for example, have failed to modernize in spite of increases in "individual modernity," Western achievement motivation, and technical skills on the part of a significant number of their populations. The descriptive studies of educational change in individual peripheral nations document the fact that the promise of educational modernization or nationalization has failed to materialize thus far.

Cross-National Analyses of Education and Development

This final section briefly examines the effect of educational expansion on national economic growth during the post-World War II period in light of the expectations for this relationship generated by the three theoretical perspectives. There have been few empirical cross-national longitudinal analyses of the relationship between national educational and economic expansion. The studies described here examined the impact of educational enrollment levels and/or changes in enrollment levels on economic development. While this is not the only aspect of educational change, the extension of schooling to an increasing proportion of the population is perhaps the most fundamental component of educational modernization.

In a longitudinal panel analysis, Meyer, Hannan, Rubinson, and Thomas (1979) estimated the effect of educational enrollment ratios at the primary and secondary levels in 1955 on economic development for 1955-70. The enrollment ratio at a given level is defined as the proportion of the age-eligible population that is enrolled in that level of schooling, and is an indicator of extent of schooling in the population. Economic development was measured in terms of Gross National Product (GNP) per capita, logarithimically transformed. Controlling for population increase over the time period, they found that primary and secondary enrollment ratios in 1950 were positively related to growth in GNP per capita between 1950-65, and 1955 levels of education were positively related to growth in GNP per capita for 1955-70. Across all sets of analyses, though, only the effect of secondary educational enrollment ratios were consistently significant. They interpreted this to mean that education has a positive effect on development, which would appear to be at odds with the suggested dependency interpretation. They stated that "...expansion of formal systems of primary and secondary education tends to increase economic growth rates, though the expansion of university systems does not" (Meyer and Hannan, 1979, p. 14). However, it must be noted that this analysis estimated the effect of a static educational level on subsequent economic development, and did not directly test the effect of educational expansion (that is, change in educational levels across a period of time) on economic development. Their results were generalized to the effects of educational expansion as well as initial educational levels. A plausible alternate interpretation of their findings

is that those nations that, for whatever reasons, had a high educational "stock" in 1950 (or 1955) were also the ones which experienced the greatest economic growth in the subsequent period.

I was interested in directly estimating the effect of educational expansion -- that is, increases in educational enrollment levels -- on economic development, under the assumption that the processes by which educational enrollment levels and educational expansion affect economic development may differ. This distinction is particularly important since the modernization perspective speaks of a positive effect of educational change on economic development. My intent was to estimate the effect of changes (which are always increases) in national levels of educational enrollment at the primary and secondary levels between 1950 and 1960 on changes in GNP per capita between 1960 and 1970.

The analysis was based on a regression model. Change in economic levels was assessed by using 1970 GNP per capita as a dependent variable, controlling for 1960 GNP per capita. Both measures were logarithmically transformed due to highly skewed distributions. Since rapidly increasing population levels make it more difficult to expand schooling, population expansion between 1950 and 1960 was introduced as a control variable. Educational expansion was measured by the ratio of educational enrollment levels in 1960 to 1950. Finally, levels of educational enrollment were used as independent variables in some analyses, to separately estimate the effect of pre-existing educational levels and change in educational levels on economic development. The basic panel model that was estimated may be represented as follows:

$$\log \frac{GNP70}{Pop70} = a + B_1 \log \frac{GNP60}{Pop60} + B_2 \frac{Pop60}{Pop50} + B_3 \frac{Pri60}{Pri50} + B_4 Pri50 + B_5 \frac{Sec60}{Sec50} + B_6 Sec50$$

Only nations with complete data for all seven variables and whose primary enrollment levels in 1950 were less than 90%[1] were included in the analysis (N=73).

The results of the panel analyses are reported in Table 1. Clearly, the expectations that are consistent with the developmentalist perspective are not upheld by the data. For example, nations that experienced the largest gains in primary and secondary enrollment ratios for 1950-60 were not significantly more likely to experience the greatest gains in economic levels for 1960-70, controlling for population increase for 1950-60 and initial levels of primary and secondary education at 1950 (see equation 1). The effect of primary educational expansion, as estimated by the magnitude of its beta coefficient, on economic development is positive but not significant, particularly when the initial level of primary education is not included in the analysis (see equation 2). The same finding applies to the effect of secondary educational expansion on economic development. A separate estimation of the effects of primary expansion and initial levels, on the one hand, and secondary expansion and initial levels, on the other (to eliminate possible problems of colinearity between the two sets of variables; see equations 3 and 4), yielded essentially the same results as the joint estimate

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[1]This excluded the richest and most developed countries as well. Besides statistical problems posed by inclusion of such cases (ceiling effects), the issue at hand concerns the effect of educational expansion in developing countries.

Table 1: Panel Analyses of Effect of Primary and Secondary Enrollment Ratios, 1950, and Primary and Secondary Enrollment Expansion, 1950-60, on Economic Development, 1960-70.

Eq. No.	No. of Cases	Constant	Control Variables: Log GNPPC 1960	Control Variables: Pop60/Pop50	Independent Variables: Pri60/Pri50	Independent Variables: Pri50	Independent Variables: Sec60/Sec50	Independent Variables: Sec50
1	73	-.623	1.075 (.118)	.192 (.530)	.077 (.062)	.007 (.004)	.040 (.025)	-.000 (.001)
2	73	-.922	1.201 (.008)	.305 (.505)	.001 (.050)	--	.029 (.024)	--
3	73	-.795	1.093 (.108)	.392 (.491)	.077 (.062)	.006 (.004)	--	--
4	73	-.889	1.179 (.105)	.351 (.518)	--	--	.031 (.025)	.000 (.001)
5	73	-.545	1.134 (.115)	.245 (.531)	--	.004 (.003)	--	-.000 (.001)

NOTE: Table entries are unstandardized beta coefficients with standard errors in parentheses. The dependent variable in all equations is log GNPPC 1970.

in equation 1. Finally, an estimate of the effect of initial levels of primary and secondary schooling, with no controls for educational expansion, on economic development (see equation 5) indicates a positive but nonsignificant effect of 1950 primary enrollment ratios and a negligible effect of 1950 secondary enrollment ratios on 1960-70 economic expansion.

The data reported in Table 1 indicate the following: for all but the most developed nations, neither a high "stock" of persons with a primary and/or secondary education in 1950 nor high rates of expansion in primary and secondary education for 1950-60 had a significantly positive effect on national economic growth for 1960-70. The existence of a high "stock" of persons with some secondary education in 1950 was virtually unrelated to 1960-70 national economic expansion, controlling for the other factors, although the existence of a high "stock" of persons with some primary education had a moderately positive, but nonsignificant, effect on national economic expansion for 1960-70. The positive but nonsignificant effects of primary and secondary educational expansion on subsequent national economic development do not necessarily indicate that educational expansion per se facilitates (albeit weakly) economic development. Given the stability of national development and economic levels, high rates of educational expansion may be a consequence of national economic prosperity or rapid economic growth during an earlier period, and nations that experienced economic prosperity prior to 1950 were also likely to experience continued economic growth in the subsequent period. This possibility is offered as an hypothesis for future research.

The combined findings suggest that educational expansion is a characteristic of the world-system, and does not necessarily distinguish between nations that experience large and small increases in economic developmet, except insofar as nations started the post-World War II period with differing levels of educational enrollments. Economic development is also a feature of the world-system during this time period; almost every nation experienced an increase in GNP per capita but, unlike educational enrollment ratios, GNP per capita has no upper limit and, therefore, there is no ceiling effect to increases in it. The analyses provided no support for the modernization contention that increased levels of education in the populace will facilitate national economic development. This finding does not rule out the possibility that a certain level of literacy is required in the national population for industrialization and other aspects of "modernization" to take place; given near-universal primary schooling in the majority of nations, however, this "critical point" (if it exists) has probably been passed. Another possibility is that, in a functional sense, national educational levels are largely unrelated to economic advancement; rather, high educational enrollment ratios may be a product of high levels of national development and, as such, advanced education may be a consumption good associated with modernity.

The previously-described cross-national analyses did not investigate many important aspects of the impact of educational change on society at the national level. Educational expansion, or intensification, or curricular innovation, etc., may have any number of other positive effects in peripheral countries (e.g.,

nation-building, the creation of the "new socialist man"), but it is fairly clear that educational expansion alone does not directly promote economic productivity and development.

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